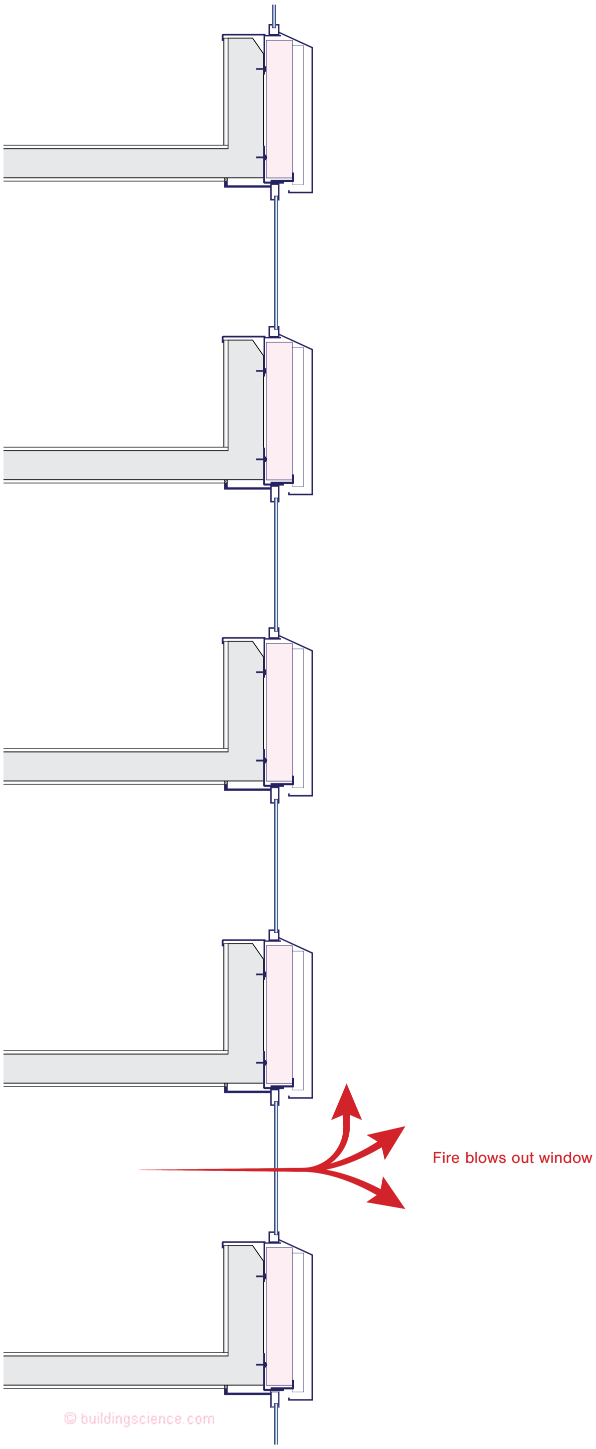

Figure 1: Fire Blows Out Window

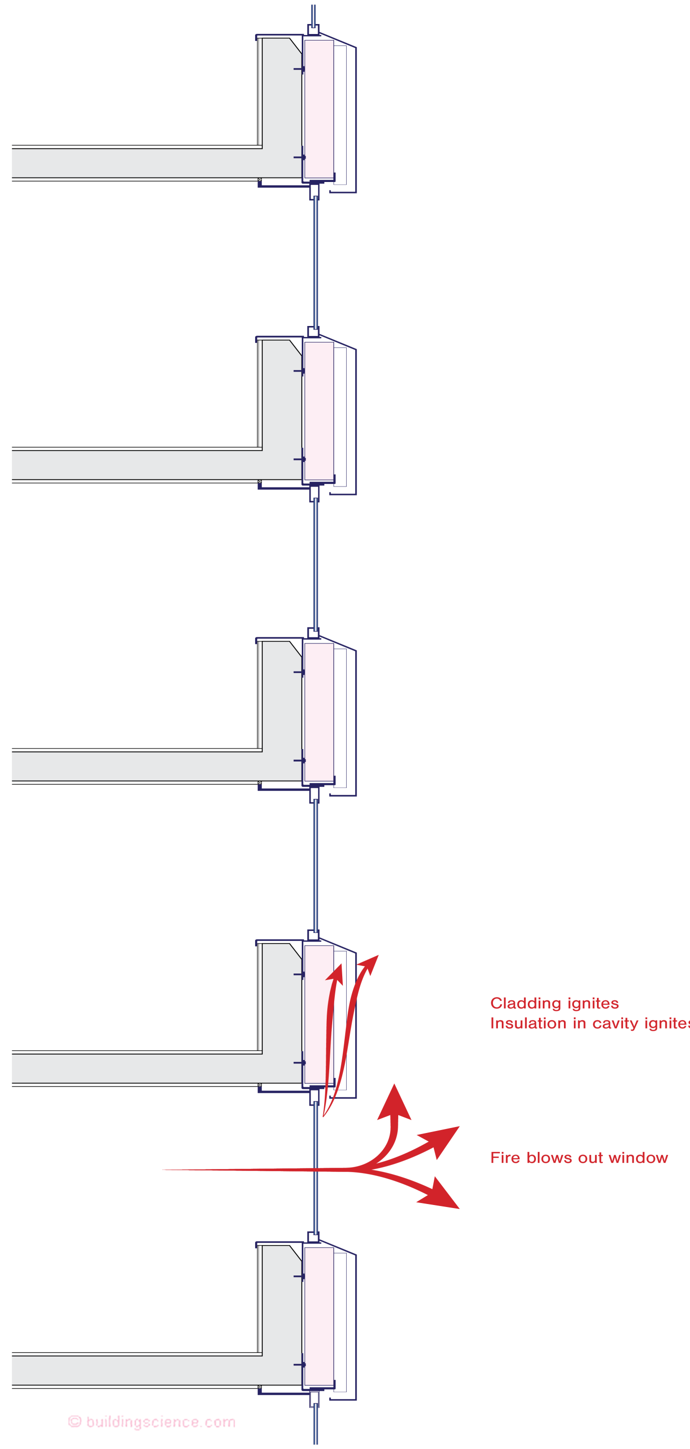

Figure 2: Cladding Ignites – Insulation In Cavity Ignites

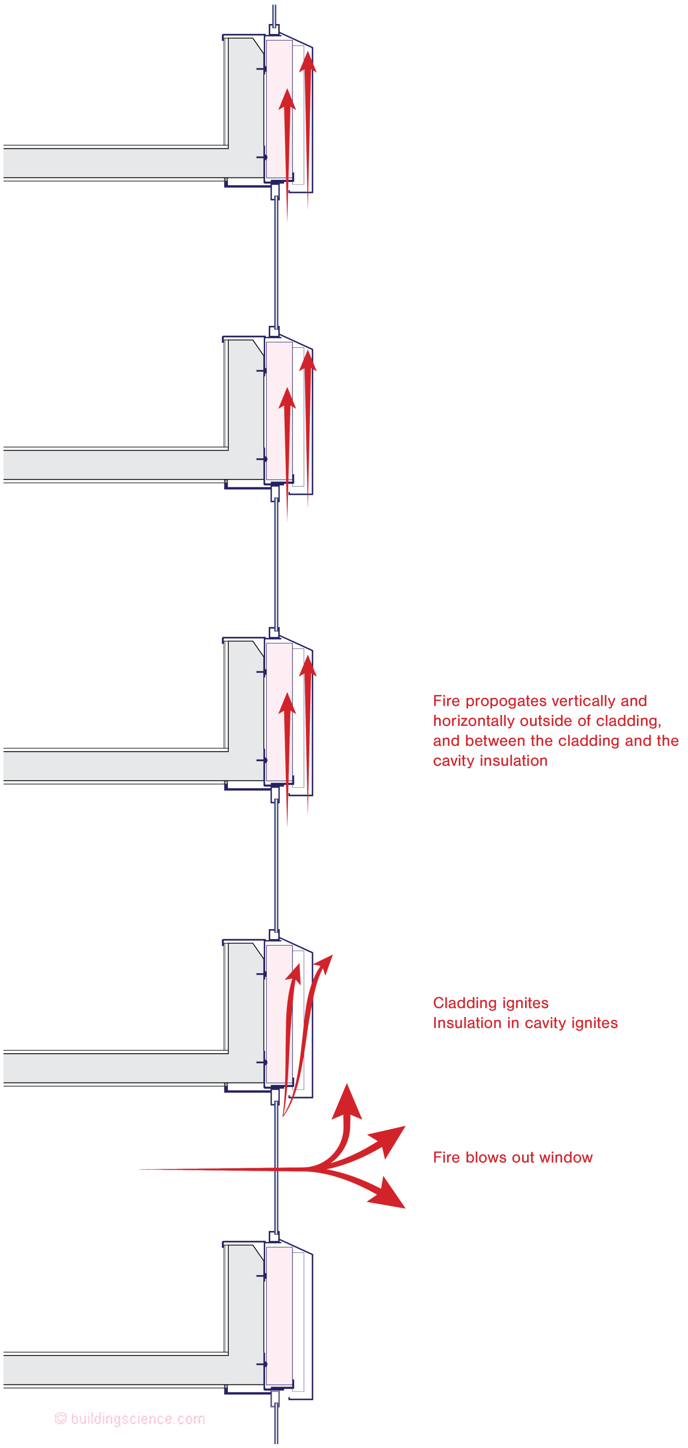

Figure 3: Fire Propagates Vertically and Horizontally

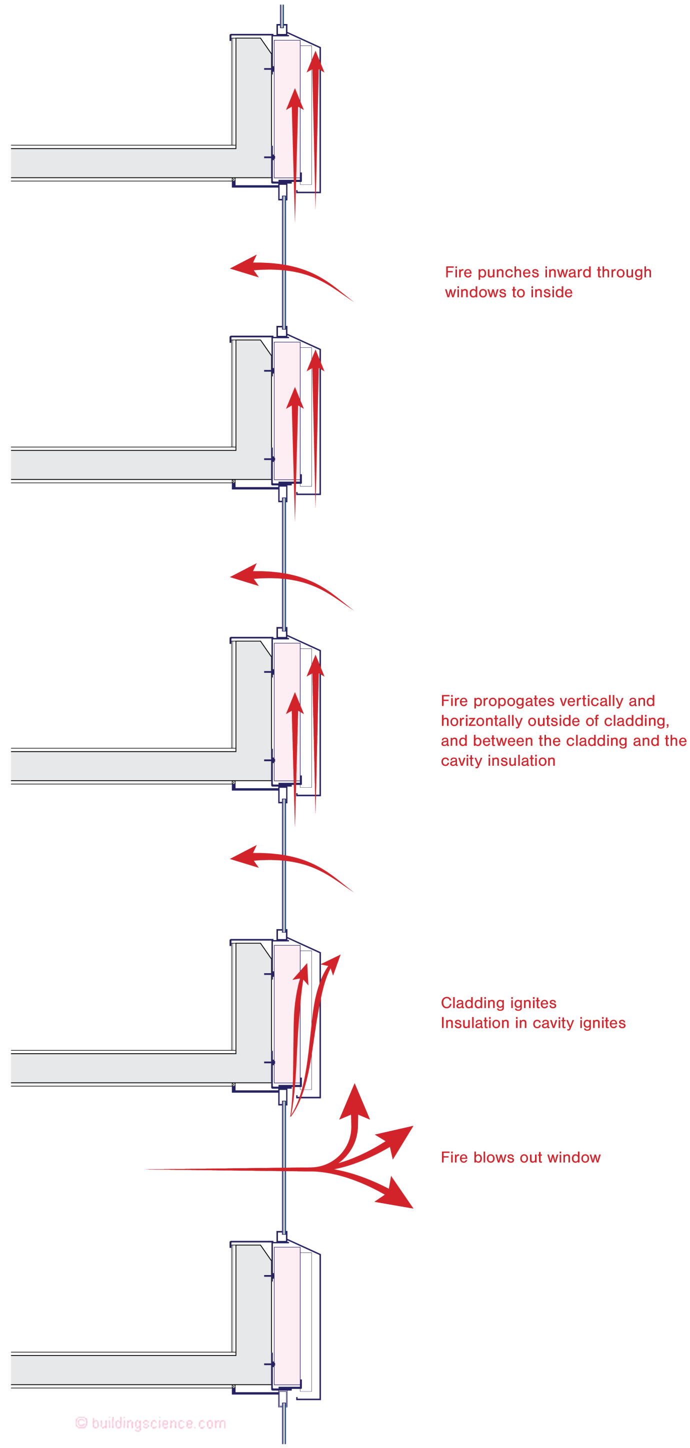

Figure 4: Fire Punches Inward Through Windows To Inside

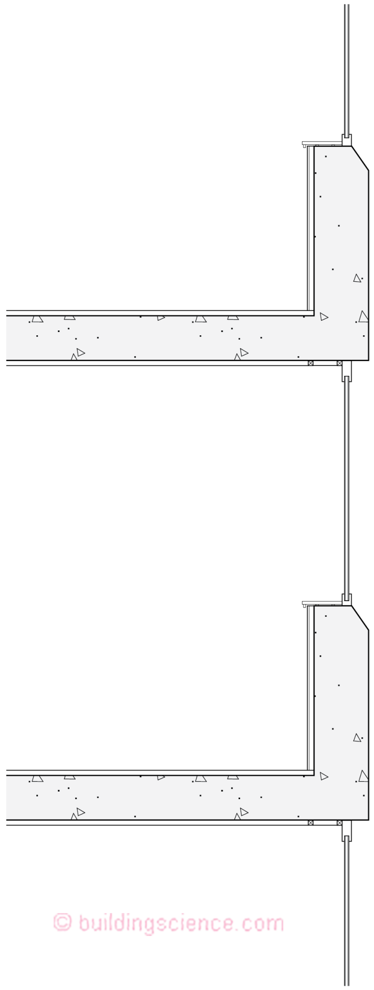

Figure 5: Grenfell Tower – Pre-Retrofit Assembly – Window aligned with concrete structure.

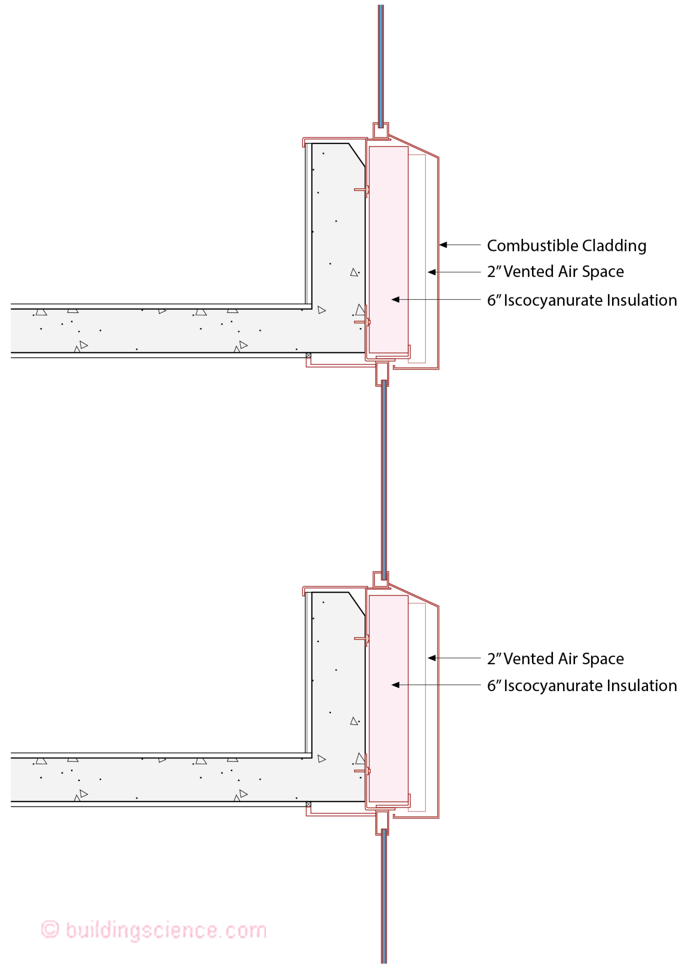

Figure 6: Grenfell Tower – Post-Retrofit Assembly - The retrofit cladding was an aluminum composite panel with a polyethylene core – highly combustible – installed over a 2-inch vented airspace. The "continuous insulation" behind the vented airspace was 6 inches of foil-faced isocyanurate – fire resistant, but not fireproof. Note the location of the retrofit window – it is outboard of the structure lining up with the thermal layer of the wall assembly. Good for thermal performance. Not so good for fire.

cladding would have to be limited both vertically and horizontally to no more than a few feet during the duration of the test. Both combustible and fire resistant insulation can work depending on the air space size and the ease which fire can breach the air space above window heads.

Combustible insulation can work with fire stops above window heads…where non-combustible cladding is used.

So, in Grenfell Tower had a non-combustible cladding been used with fire stops above window heads coupled with a narrow airspace we would not be having this discussion. The foil-faced isocyanurate continuous insulation layer would not have contributed to the fire to the extent that it did. And, obviously, had a non-combustible cladding coupled with a non-combustible continuous insulation layer such as stone-wool or mineral wool been used, we would not be having this discussion.

What has worked for us in both the United States and in Canada follows.

